Influenza Reagent
Influenza Virus Infectious IVR-237 (A/Thailand/8/2022) (H3N2)
NIBSC code: 23/206

Instructions for use
(Version 1.0, Dated 17/10/2023)

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1. INTENDED USE
Reagent 23/206 was prepared from IVR-237 (H3N2), a reassortant of A/Thailand/8/2022 (H3N2) and A/PR/8/34 (H1N1), which was processed in 250µl volumes as liquid stock. The derivation and known passage history of 23/206 are attached.

2. CAUTION
This preparation is not for administration to humans or animals in the human food chain.

3. UNITAGE
No unitage is assigned to this material.

4. CONTENTS
Country of origin of biological material: United Kingdom.
Each ampoule contains 250µl (nominal) of infectious influenza virus as allantoic fluid from SPF embryonated hen’s eggs.

5. STORAGE
Store in the dark at -70°C or below.
Material type: Liquid – will be shipped according to the storage and shipping conditions of the product

6. DIRECTIONS FOR OPENING
Vials have a screw cap; an internal stopper may also be present. The cap should be removed by turning anti-clockwise. Care should be taken to prevent loss of the contents. Please note: If a stopper is present on removal of the cap, the stopper should remain in the vial or be removed with the cap.

7. USE OF MATERIAL
Ready to use.

8. STABILITY
Reference materials are held at NIBSC within assured, temperature-controlled storage facilities. Reference Materials should be stored on receipt as indicated on the label.

NIBSC follows the policy of WHO with respect to its reference materials.

9. REFERENCES
N/A.

10. ACKNOWLEDGEMENTS
N/A.

11. FURTHER INFORMATION
Further information can be obtained as follows;
This material: enquiries@nibsc.org
WHO Biological Standards:
http://www.who.int/biologicals/en/
JCTLM Higher order reference materials:
http://www.bipm.org/en/committees/jc/jctlm/
Derivation of International Units:
http://www.nibsc.org/standardisation/international_standards.aspx
Ordering standards from NIBSC:
http://www.nibsc.org/products/ordering.aspx
NIBSC Terms & Conditions:
http://www.nibsc.org/terms_and_conditions.aspx

12. CUSTOMER FEEDBACK
Customers are encouraged to provide feedback on the suitability or use of the material provided or other aspects of our service. Please send any comments to enquiries@nibsc.org

13. CITATION
In all publications, including data sheets, in which this material is referenced, it is important that the preparation’s title, its status, the NIBSC code number, and the name and address of NIBSC are cited and cited correctly.

14. MATERIAL SAFETY SHEET
Classification in accordance with Directive 2000/54/EC, Regulation (EC) No 1272/2008: Not applicable or not classified

Physical and Chemical properties

<table>
<thead>
<tr>
<th>Physical appearance:</th>
<th>Corrosive:</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable:</td>
<td>Oxidising:</td>
<td>No</td>
</tr>
<tr>
<td>Hygroscopic:</td>
<td>Irritant:</td>
<td>No</td>
</tr>
<tr>
<td>Flammable:</td>
<td>Handling:</td>
<td>See caution, Section 2</td>
</tr>
</tbody>
</table>

Other (specify):
Live influenza virus

Toxicological properties

<table>
<thead>
<tr>
<th>Effects of inhalation:</th>
<th>Likelihood of influenza virus infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects of ingestion:</td>
<td>Not established, avoid ingestion</td>
</tr>
<tr>
<td>Effects of skin absorption:</td>
<td>Not established, avoid contact with skin</td>
</tr>
</tbody>
</table>

Suggested First Aid

Inhalation: Seek medical advice
Ingestion: Seek medical advice
Contact with eyes: Wash with copious amounts of water. Seek medical advice
Contact with skin: Wash thoroughly with water.

Action on Spillage and Method of Disposal

Spillage of ampoule contents should be taken up with absorbent material wetted with an appropriate virucidal agent. Rinse area with an appropriate virucidal agent followed by water. Absorbent materials used to treat spillage should be treated as biological waste.
15. LIABILITY AND LOSS
In the event that this document is translated into another language, the English language version shall prevail in the event of any inconsistencies between the documents. Unless expressly stated otherwise by NIBSC, NIBSC’s Standard Terms and Conditions for the Supply of Materials (available at http://www.nibsc.org/About_Us/Terms_and_Conditions.aspx or upon request by the Recipient) (“Conditions”) apply to the exclusion of all other terms and are hereby incorporated into this document by reference. The Recipient’s attention is drawn in particular to the provisions of clause 11 of the Conditions.

16. INFORMATION FOR CUSTOMS USE ONLY

<table>
<thead>
<tr>
<th>Country of origin for customs purposes*</th>
<th>United Kingdom</th>
</tr>
</thead>
</table>
* Defined as the country where the goods have been produced and/or sufficiently processed to be classed as originating from the country of supply, for example a change of state such as freeze-drying.

<table>
<thead>
<tr>
<th>Net weight:</th>
<th>0.25 g per vial</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Toxicity Statement:</th>
<th>Non-toxic</th>
</tr>
</thead>
</table>

Veterinary certificate or other statement if applicable. Attached: No

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### Passage history of IVR-237 (H3N2)

<table>
<thead>
<tr>
<th>Cumulative number of passages</th>
<th>Passage numbers at each stage</th>
<th>Lot</th>
<th>Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>E3</td>
<td>SL10066728</td>
<td>VIDRL, Australia</td>
</tr>
<tr>
<td>E10</td>
<td>E3/E7</td>
<td>LOT 617B</td>
<td>Seqirus, Australia</td>
</tr>
<tr>
<td>E11</td>
<td>E3/E7/E1</td>
<td>47870*</td>
<td>MHRA, UK</td>
</tr>
</tbody>
</table>

* The HA titre of this virus using 0.7% guinea pig red blood cells is 1024. The infectious titre is unknown.

Sterility: No visible contamination was detected in a variety of media (tryptone soya broth, thioglycolate broth, Sabouraud’s broth and blood agar plates) after 14 days incubation.

The HA and NA sequence of this virus are available at GISAID with the accession number EPI_ISL_18399658.
 derivation of IVR-237
A/Thailand /8/2022 – like High Growth Reassortant

A/Thailand /8/2022 (IVR-237) is a H3N2 high growth reassortant influenza virus.

PREPARATION
The preparation of A/Thailand /8/2022 (IVR-237) high growth reassortant influenza virus was conducted in Biopharmaceutical Product Development – FCC + Development at CSL Seqirus.

The high yielding parent strain used was A/Puerto Rico/8/34.

MATERIALS
The following materials of biological origin were used during the preparation of high growth reassortant IVR-237:

Virus Isolate:
The virus isolate was obtained from the WHO Collaborating Centre for Reference & Research on Influenza, Melbourne (WHO-CC).

Supply details are:
A/Thailand /8/2022
WHO-CC Storage Lot number SL10066728
Passages prior to receipt at Seqirus: 3

Eggs:
Specific Pathogen Free (SPF) eggs were used for all passages at CSL Seqirus.

Antiserum:
Trypsin-periodate treated sheep hyperimmune antiserum Lot# AS367, Sub-lot # 5041 and Sub-lot #5053, raised against influenza virus A/Puerto Rico/8/34.

The antiserum was derived from sheep born and raised in Australia.

Note on Transmissible Spongiform Encephalopathies (TSEs):
Australia and New Zealand have been declared TSE free in accordance with OIE guidelines. Detailed information on Australia’s animal health status can be obtained from the following Animal Health Australia website link: https://animalhealthaustralia.com.au

The trypsin used is 10x solution of gamma irradiated porcine pancreatic trypsin; Gibco Cat # 15090046, Manufacturers Lot No. 2195376 and 2317956.
## Testing of A/Thailand/8/2022 Influenza Virus (IVR-237)

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genotype (by real time RT-PCR)</td>
<td>4 : 4 (A/Puerto Rico/8/34 : A/Thailand/8/2022) Reassortant A/Thailand/8/2022 (wild type virus) genes H3, N2 genes were detected. A/Puerto Rico/8/34 genes NP, PA, M and PB2 were detected. PB1 and NS1 genes from A/Puerto Rico/8/34 were not detected, indicating that the reassortant PB1 and NS1 genes are from A/Thailand/8/2022 (wild type virus).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gene</th>
<th>A/Puerto Rico/8/34</th>
<th>A/Thailand/8/2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>N2</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>H1</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>N1</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>PB1</td>
<td>×</td>
<td>NT</td>
</tr>
<tr>
<td>PB2</td>
<td>✓</td>
<td>NT</td>
</tr>
<tr>
<td>PA</td>
<td>✓</td>
<td>NT</td>
</tr>
<tr>
<td>NP</td>
<td>✓</td>
<td>NT</td>
</tr>
<tr>
<td>M</td>
<td>✓</td>
<td>NT</td>
</tr>
<tr>
<td>NS</td>
<td>×</td>
<td>NT</td>
</tr>
</tbody>
</table>

✓ - positive by PCR          × - negative by PCR        NT – Not Tested

Disclaimer:

The material i.e. high growth reassortant virus IVR-237 and the information provided in this derivation report are provided on an “as is” basis and as such without any warranty or representation of any kind (expressed or implied) including, without limitation, of satisfactory quality or fitness for a particular purpose.
**Virus sample diluted to** $10^{-3}$, **dilation was mixed with antiserum to A/Puerto Rico/8/34 (H1N1) and incubated for 1 hour at room temperature.** Incubated virus/antiserum sample was serially diluted and inoculated into eggs.

**Total number of passages post mixed infection = 6**
**Total number of passages since this virus was received from an approved laboratory = 7**

**HA titres were determined using guinea pig red blood cells at room temperature.**
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Date: 01/FEB/2023

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Date: 01/FEB/2023